AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A channel quality reporting method for use by a wireless terminal, the method comprising:

measuring at least one of an amplitude ~~and~~ or a phase of a first pilot signal corresponding to a first pilot tone to produce a first measured signal value;

generating a first channel quality indicator value from ~~said~~ the first measured signal value according to a first function which uses at least ~~said~~ the first measured signal value as an input;

transmitting the first channel quality indicator value, wherein transmitting the first channel quality indicator value includes:

incorporating ~~said~~ the first channel quality indicator value into a first message; and

transmitting ~~said~~ the first message over a wireless communications link;

measuring at least one of an amplitude ~~and~~ or a phase of a second pilot signal corresponding to a second pilot tone to produce a second measured signal value, the second pilot signal having a different transmission power than ~~said~~ the first pilot signal;

generating a second channel quality indicator value from ~~said~~ the second measured signal value according to a second function which uses at least ~~said~~ the second measured signal value as an input; and

transmitting the second channel quality indicator value, wherein transmitting the second channel quality indicator value includes:

incorporating ~~said~~ the second channel quality indicator value into ~~said~~ the first message; and

transmitting ~~said~~ the second channel quality indicator value with ~~said~~ the first value in ~~said~~ the first message over the wireless communications link.

2. (Currently Amended) The method of claim 1, wherein at least one of the first ~~and~~ or second pilot signals is a NULL signal transmitted with zero power.

3. (Currently Amended) The method of claim 1, wherein generating a first channel quality indicator value from ~~said~~ the first signal measurement value according to a first function includes:

estimating the power included in at least one of the first pilot signal ~~and~~ or second ~~received~~ pilot signal[[s]].

4. (Currently Amended) The method of claim 3, wherein generating a second channel quality indicator value from ~~said~~ the second signal measurement value according to a second function includes:

estimating ~~the~~ a received power included in at least the second ~~received~~ pilot signal.

5. (Currently Amended) The method of claim 3, wherein generating a second channel quality indicator value from ~~said~~ the second measured signal value according to a second function further includes:

estimating ~~the~~ a signal to noise ratio of the second ~~received~~ pilot signal.

6. (Currently Amended) The method of claim 1, wherein generating a first channel quality indicator value from ~~said~~ the first measured signal value according to a first function includes:

estimating ~~the~~ a signal to noise ratio of the first ~~received~~ pilot signal.

7. (Currently Amended) The method of claim 6, wherein generating a second channel quality indicator value from ~~said~~ the second measured signal value according to a second function includes:

estimating ~~the~~ a signal to noise ratio of the second ~~received~~ pilot signal.

8. (Currently Amended) The method of claim 1, wherein ~~said~~ the first and second pilot tones are received during different non-overlapping time periods.

9. (Currently Amended) The method of claim 8, wherein ~~said~~ the first and second pilot tones correspond to the same frequency.

10. (Currently Amended) The method of claim 1, wherein ~~said~~ the first and second pilot tones are received during the same time period, the first and second pilot tones corresponding to different frequencies.

11-12. (Cancelled)

13. (Currently Amended) The method of claim 1, further comprising:

repeatedly performing ~~said~~ the steps of:

measuring a first pilot signal to produce a first measured signal value;

generating a first channel quality indicator value;

incorporating ~~said~~ the first channel quality indicator value into a first message;

transmitting ~~said~~ the first message over a wireless communications link;

measuring a second pilot signal;

generating a second channel quality indicator value;

incorporating ~~said~~ the second channel quality indicator value into a second message which is different from ~~said~~ the first message; and

transmitting ~~said~~ the second message over ~~said~~ the wireless communications link.

14. (Currently Amended) The method of claim 13, further comprising:

periodically repeating ~~said~~ the steps of transmitting the first channel quality indicator value and the second channel quality indicator value to transmit the corresponding values generated by repeatedly performing ~~said~~ the measuring and generating steps, the generated first and second channel quality indicator values being transmitted in an interleaved manner over time.

15. (Currently Amended) The method of claim 14, wherein ~~said~~ the interleaved manner includes alternating ~~the~~ transmission of ~~said~~ the first and second messages.

16. (Currently Amended) The method of claim 13, wherein ~~said~~ the first and second messages are transmitted using communications channel segments dedicated to carrying channel quality indicator values, ~~said~~ the messages carrying no explicit message types to indicate ~~said~~ the messages are to report channel quality values.

17. (Currently Amended) The method of claim 16, wherein ~~said~~ the first and second messages are transmitted during pre-selected dedicated time slots dedicated for use by ~~said~~ the wireless terminal, ~~said~~ wherein dedication of ~~said~~ the dedicated time slots ~~precluding~~ precludes other wireless terminals using ~~said~~ the dedicated time slots.

18. (Currently Amended) The method of claim 1, wherein ~~said~~ the wireless terminal is located in a first sector of a sectorized cell in which each sector uses ~~the~~ a same set of tones, the step of measuring at least one of an amplitude ~~and~~ or a phase of a first pilot signal to produce a first measured signal value including:

performing ~~said~~ the first pilot signal measurement during a time period during which a sector located adjacent ~~said~~ the first sector transmits another pilot signal on ~~the~~ a same tone as the first pilot but using a different pre-selected transmission power from the pre-selected transmission power used to transmit the first pilot signal.

19. (Currently Amended) The method of 18, wherein ~~said~~ the another pilot signal is a NULL pilot signal and wherein ~~said~~ the different pre-selected transmission power used to transmit ~~said~~ the another pilot signal during ~~said~~ the time period is zero.

20. (Currently Amended) The method of claim 19, wherein ~~said~~ the second step of measuring at least one of an amplitude ~~and~~ or a phase of a second pilot signal to produce a second measured signal value, includes:

performing ~~said~~ the second pilot signal measurement during a time period during which a sector located adjacent ~~said~~ the first sector transmits an additional pilot signal on ~~the~~ a same tone as the second pilot using the same pre-selected transmission power as the pre-selected transmission power used to transmit the second pilot signal.

21. (Currently Amended) The method of claim 20, wherein the first and second pilot signal measurements are performed at substantially the same time.

22. (Currently Amended) The method of claim 21, further comprising:

measuring, at said same time, ~~the~~ power received on a third tone on which no signals are transmitted during said same time, said same time being a symbol period used to transmit one symbol.

23. (Currently Amended) The method of claim 18, further comprising:

determining relative position of the wireless terminal to at least two adjacent sectors to the sector in which the wireless terminal is located based on ~~said~~ the first and second signal measurements; and

transmitting position information indicating a relative position to a sector boundary to a base station.

24. (Currently Amended) The method of claim 23, further comprising:

selecting channel information to be transmitted to ~~said~~ the base station as a function of the ~~determined~~ relative position to a sector boundary.

25. (Currently Amended) The method of claim 24, wherein different channel condition information is transmitted when ~~said~~ the wireless terminal is near a first sector boundary than when [[it]] the wireless terminal is near a second sector boundary.

26. (Original) The method of claim 18, wherein the first channel quality indicator value is a function of a ratio of channel gain of an interfering sector and the sector in which the wireless terminal is located.

27. (Currently Amended) The method of claim 18, wherein the second signal measurement is made during a time period ~~where~~ during which each of the sectors transmits a NULL on ~~said~~ the second tone; and

wherein ~~said~~ the second channel quality indicator value is a measurement of ~~the~~ noise on ~~said~~ the second tone during ~~the~~ transmission of ~~said~~ the NULL by each of the sectors of the cell on ~~said~~ the second tone.

28. (Currently Amended) The method of claim 18, wherein ~~said~~ the method is further directed to using channel quality information to control transmission power in a sector of a cell, the method comprising:

operating a base station to receive ~~said~~ the first and second channel quality indicator values; and

operating the base station to calculate, from the first and second channel quality indicator values, an amount of transmission power required to achieve a ~~desired~~ target signal to noise ratio at ~~said~~ the wireless terminal, ~~said~~ wherein calculating the amount of transmission power comprises employing ~~requiring~~ at least two different channel quality indicator values to ~~determining~~ determine ~~said~~ the amount of transmission power.

29. (Currently Amended) The method of claim 28, further comprising:

periodically repeating ~~said~~ the step of operating the base station to calculate ~~said~~ the amount of transmission power using a different set of first and second channel quality indicator values received from ~~said~~ the wireless terminal, each different set of first and second channel quality indicator values corresponding to a different symbol time during which ~~said~~ the first and second pilot signal measurements were made.

30. (Currently Amended) A wireless terminal, ~~said~~ the wireless terminal including:

receiver means for receiving pilot signals;

measuring means for measuring at least one of an amplitude ~~and~~ or a phase of a first pilot signal to produce a first measured signal value and at least one of an amplitude ~~and~~ or a phase of a second pilot signal to produce a second measured signal value;

channel quality indicator value generation means for generating a first channel quality indicator value from ~~said~~ the first measured signal value according to a first function which uses at least ~~said~~ the first measured signal value as an input and generates a second channel quality indicator value from ~~said~~ the second measured signal value according to a second function which uses at least ~~said~~ the second measured signal value as an input, wherein ~~said~~ the channel quality indicator value generation means includes ~~said~~ the second channel quality indicator value in ~~said~~ the first message; and

transmitter means for transmitting the first and second channel quality indicator values.

31. (Currently Amended) The wireless terminal of claim 30, wherein ~~said~~ the channel quality indicator value generation means includes software instructions for controlling a processing device to:

estimate ~~the~~ received power included in at least one of the first pilot signal ~~and~~ or the second ~~received~~ pilot signal[[s]].

32. (Currently Amended) The wireless terminal of claim 31, wherein ~~said~~ the channel quality indicator value generation means further includes additional software instructions for controlling the processing device to:

estimate ~~the~~ received power included in at least the second ~~received~~ pilot signal.

33. (Currently Amended) The wireless terminal of claim 31, wherein ~~said~~ the channel quality indicator value generation means further includes additional software instructions for controlling the processing device to:

estimate ~~the~~ a signal to noise ratio of the second ~~received~~ pilot signal.

34. (Currently Amended) The wireless terminal of claim 31, wherein ~~said~~ the transmitter means includes:

message generation means for generating a first message including ~~said~~ the first channel quality indicator value.

35. (Cancelled)

36. (Currently Amended) The wireless terminal of claim 34, wherein ~~said~~ the message generation means includes machine executable instructions for controlling a machine to generate a second message including ~~said~~ the second channel quality indicator value.

37. (Currently Amended) The wireless terminal of claim 34, further comprising:
means for determining ~~the~~ a position of the wireless terminal relative to a sector boundary from received signals.

38. (Currently Amended) The wireless terminal of claim 37, wherein ~~said~~ the message generation means includes position information in ~~said~~ the first message.

39. (Currently Amended) A base station, comprising:

a receiver for receiving at least two channel quality indicator values from a wireless terminal; and

means for determining from at least two different channel quality indicator values a transmission power required to achieve a ~~desired~~ target signal to noise ratio at ~~said~~ the wireless terminal, wherein ~~said~~ the at least two different channel quality indicator values correspond to different power signal measurements made by ~~said~~ the wireless terminal, ~~said~~ the different power signal measurements corresponding to different signal components but ~~the~~ a same period of time, ~~said~~ the determined transmission power being a function of ~~said~~ the at least two different channel quality indicator values.

40. (Cancelled)

41. (Currently Amended) The base station of claim 39, further comprising:

means for transmitting a signal to ~~said~~ the wireless terminal using a transmission power determined from ~~said~~ the at least two different channel quality indicator values.

42. (Currently Amended) The base station of claim 41, further comprising:

means for extracting ~~said~~ the at least two different channel quality values from a single message received from ~~said~~ the wireless terminal.

43. (Currently Amended) The base station of claim 41, further comprising:

means for extracting ~~said~~ the at least two different channel quality values from two separate messages received from ~~said~~ the wireless terminal.

44. (Currently Amended) The base station of claim 39, further comprising:

means for receiving channel quality indicator information indicating ~~the~~ a position of the wireless terminal relative to a second boundary included in a multi-sector cell.

45. (Currently Amended) The base station of claim 39, further comprising:

a multi-sector transmit antenna for transmitting pilot signals into a plurality of sectors of a cell at ~~the~~ a same time; and

a transmitter coupled to ~~said~~ the multi-sector antenna for supplying pilot signals to the multi-sector antenna for transmission, ~~all~~ the plurality of sectors of the cell using ~~the~~ a same set of tones for pilot signals, the pilot signals being transmitted at substantially the same time in each of the sectors, ~~said~~ the wireless terminal being located in one of ~~said~~ the multiple sectors.

46-50. (Cancelled)

51. (Currently Amended) A device comprising a processor configured to control ~~said~~ the device to implement a channel quality reporting method, the method comprising:

measuring at least one of an amplitude ~~and~~ or a phase of a first pilot signal corresponding to a first pilot tone to produce a first measured signal value;

generating a first channel quality indicator value from ~~said~~ the first measured signal value according to a first function which uses at least ~~said~~ the first measured signal value as an input;

transmitting the first channel quality indicator value, wherein transmitting the first channel quality indicator value includes:

incorporating ~~said~~ the first channel quality indicator value into a first message; and

transmitting ~~said~~ the first message over a wireless communications link;

measuring at least one of an amplitude ~~and~~ or a phase of a second pilot signal corresponding to a second pilot tone to produce a second measured signal value, the second pilot signal having a different transmission power than ~~said~~ that of the first pilot signal;

generating a second channel quality indicator value from ~~said~~ the second measured signal value according to a second function which uses at least ~~said~~ the second measured signal value as an input; and

transmitting the second channel quality indicator value, wherein transmitting the second channel quality indicator value includes:

incorporating ~~said~~ the second channel quality indicator value into ~~said~~ the first message; and

transmitting ~~said~~ the second channel quality indicator value with ~~said~~ the first value in ~~said~~ the first message over the wireless communications link.

52. (Currently Amended) The device of claim 51, wherein at least one of the first ~~and~~ or second pilot signals is a NULL signal transmitted with zero power.

53. (Currently Amended) The device of claim 51, wherein generating a first channel quality indicator value from ~~said~~ the first signal measurement value according to a first function includes:

estimating ~~the~~ power included in at least one of the first pilot signal ~~and~~ or the second ~~received~~ pilot signal[[s]].

54. (Currently Amended) A ~~physical~~ non-transitory computer readable medium embodying computer executable instructions for controlling a wireless terminal to implement a channel quality reporting method, the method comprising:

measuring at least one of an amplitude ~~and~~ or a phase of a first pilot signal corresponding to a first pilot tone to produce a first measured signal value;

generating a first channel quality indicator value from ~~said~~ the first measured signal value according to a first function which uses at least ~~said~~ the first measured signal value as an input;

transmitting the first channel quality indicator value, wherein transmitting the first channel quality indicator value includes:

incorporating ~~said~~ the first channel quality indicator value into a first message; and

transmitting ~~said~~ the first message over a wireless communications link;

measuring at least one of an amplitude ~~and~~ or a phase of a second pilot signal corresponding to a second pilot tone to produce a second measured signal value, the second pilot signal having a different transmission power than ~~said~~ that of the first pilot signal;

generating a second channel quality indicator value from ~~said~~ the second measured signal value according to a second function which uses at least ~~said~~ the second measured signal value as an input; and

transmitting the second channel quality indicator value, wherein transmitting the second channel quality indicator value includes:

incorporating ~~said~~ the second channel quality indicator value into ~~said~~ the first message; and

transmitting ~~said~~ the second channel quality indicator value with ~~said~~ the first value in ~~said~~ the first message over the wireless communications link.

55. (Currently Amended) The ~~physical~~ non-transitory computer readable medium of claim 54, wherein at least one of the first pilot signal ~~and~~ or the second pilot signal[[s]] is a NULL signal transmitted with zero power.

56. (Currently Amended) The ~~physical~~ non-transitory computer readable medium of claim 54, wherein generating a first channel quality indicator value from ~~said~~ the first signal measurement value according to a first function includes:

estimating ~~the~~ power included in at least one of the first pilot signal ~~and~~ or the second ~~received~~ pilot signal[[s]].

57. (Currently Amended) A wireless terminal, ~~said~~ the wireless terminal including:

a receiver for receiving pilot signals;

a measuring module for measuring at least one of an amplitude ~~and~~ or a phase of a first pilot signal to produce a first measured signal value and at least one of an amplitude ~~and~~ or a phase of a second pilot signal to produce a second measured signal value;

a channel quality indicator value generation module for generating a first channel quality indicator value from ~~said~~ the first measured signal value according to a first function which uses at least ~~said~~ the first measured signal value as an input and generates a second channel quality indicator value from ~~said~~ the second measured signal value according to a second function which uses at least ~~said~~ the second measured signal value as an input, wherein ~~said~~ the channel quality indicator value generation module includes ~~said~~ the second channel quality indicator value in ~~said~~ the first message; and

a transmitter for transmitting the first and second channel quality indicator values.

58. (Currently Amended) The wireless terminal of claim 57, wherein ~~said~~ the transmitter includes:

a message generation module for generating a first message including ~~said~~ the first channel quality indicator value.

59. (Currently Amended) The wireless terminal of claim 58, wherein ~~said~~ the message generation module includes ~~said~~ the second channel quality indicator value in ~~said~~ the first message.

60. (Currently Amended) A method of operating a base station, the method comprising:

receiving at least two channel quality indicator values from a wireless terminal; and

determining from at least two different channel quality indicator values a transmission power required to achieve a ~~desired~~ target signal to noise ratio at ~~said~~ the wireless terminal, wherein ~~said~~ the at least two different channel quality indicator values correspond to different power signal measurements made by ~~said~~ the wireless terminal, ~~said~~ the different power signal measurements corresponding to different signal components but ~~the~~ a same period of time, ~~said~~ the determined transmission power being a function of ~~said~~ the at least two different channel quality indicator values.

61. (Currently Amended) The method of claim 60, further comprising:

transmitting a signal to ~~said~~ the wireless terminal using a transmission power determined from ~~said~~ the at least two different channel quality indicator values.

62. (Currently Amended) The method of claim 61, further comprising:

extracting ~~said~~ the at least two different channel quality indicator values from a single message received from ~~said~~ the wireless terminal.

63. (Currently Amended) The method of claim 60, further comprising:

transmitting pilot signals into a plurality of sectors of a cell at substantially the same time using a multi-sector transmit antenna, ~~the~~ a same set of tones being used for pilot signals in each of the plurality of sectors, the pilot signals being transmitted at substantially the same time in each of the plurality of sectors, ~~said~~ the wireless terminal being located in one of ~~said multiple~~ the plurality of sectors.

64. (Currently Amended) A device comprising a processor configured to control a base station to implement a method, the method comprising:

receiving at least two channel quality indicator values from a wireless terminal; and

determining from at least two different channel quality indicator values a transmission power required to achieve a ~~desired~~ target signal to noise ratio at ~~said~~ the wireless terminal, wherein ~~said~~ the at least two different channel quality indicator values correspond to different power signal measurements made by ~~said~~ the wireless terminal, ~~said~~ the different power signal measurements corresponding to different signal components but ~~the~~ a same period of time, ~~said~~ the determined transmission power being a function of ~~said~~ the at least two different channel quality indicator values.

65. (Currently Amended) The device of claim 64, wherein the method further comprises:

transmitting a signal to ~~said~~ the wireless terminal using a transmission power determined from ~~said~~ the at least two different channel quality indicator values.

66. (Currently Amended) The device of claim 65, wherein the method further comprises:

extracting ~~said~~ the at least two different channel quality indicator values from a single message received from ~~said~~ the wireless terminal.

67. (Currently Amended) A ~~physcial~~ non-transitory computer readable medium embodying computer executable instructions for controlling a base station to implement a method, the method comprising:

receiving at least two channel quality indicator values from a wireless terminal; and

determining from at least two different channel quality indicator values a transmission power required to achieve a ~~desired~~ target signal to noise ratio at ~~said~~ the wireless terminal, wherein ~~said~~ the at least two different channel quality indicator values correspond to different power signal measurements made by ~~said~~ the wireless terminal, ~~said~~ the different power signal measurements corresponding to different signal components but ~~the~~ a same period of time, ~~said~~ the determined transmission power being a function of ~~said~~ the at least two channel quality indicator values.

68. (Currently Amended) The ~~physical~~ non-transitory computer readable medium of claim 67, wherein the method further comprises:

transmitting a signal to ~~said~~ the wireless terminal using a transmission power determined from ~~said~~ the at least two different channel quality indicator values.

69. (Currently Amended) The ~~physical~~ non-transitory computer readable medium of claim 68, wherein the method further comprises:

extracting ~~said~~ the at least two different channel quality indicator values from a single message received from ~~said~~ the wireless terminal.

70. (Currently Amended) A base station comprising:

a receiver module for receiving at least two channel quality indicator values from a wireless terminal; and

a determination module for determining from at least two different channel quality indicator values a transmission power required to achieve a ~~desired~~ target signal to noise ratio at ~~said~~ the wireless terminal, wherein ~~said~~ the at least two different channel quality indicator values correspond to different power signal measurements made by ~~said~~ the wireless terminal, ~~said~~ the different power signal measurements corresponding to different signal components but ~~the~~ a same period of time, ~~said~~ the determined transmission power being a function of ~~said~~ the at least two different channel quality indicator values.

71. (Currently Amended) The base station of claim 70, further comprising:

a transmitter module for transmitting a signal to ~~said~~ the wireless terminal using a transmission power determined from ~~said~~ the at least two different channel quality indicator values.

72. (Currently Amended) The base station of claim 71, further comprising:

a module for extracting ~~said~~ the at least two different channel quality indicator values from a single message received from ~~said~~ the wireless terminal.